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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,754	02/03/2006	Hiroya Kobayashi	046124-5377	6882

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EXAMINER	
AHMED, SELIM U	
ART UNIT	PAPER NUMBER
2826	
MAIL DATE	DELIVERY MODE
09/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,754	KOBAYASHI ET AL.	
	Examiner	Art Unit	
	SELIM AHMED	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *03 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5 and 6* is/are allowed.

6)☒ Claim(s) *1-4, 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/03/2006, 04/08/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is the initial office action based on the application filed on 02/03/2006.

Claims 1-7 as originally filed are considered here.

Priority

2. Acknowledgment is made of applicant's claim for priority under PCT/JP03/12911 filed on 10/08/2003 which is based on a Japanese application JP2002-296543 filed on 10/09/2002. The certified copy has been filed with the application.

Information Disclosure Statement

3. The Information Disclosure Statements filed on 02/03/2006 and 04/08/2005 has been considered.

Oath/Declaration

4. The oath or declaration filed on 02/03/2006 is acceptable.

Drawings

5. The drawings filed on 04/08/2005 are acceptable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4, and 7 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Miyaguchi et al (JP11-188033; Miyaguchi hereinafter) in views of Yamamoto et al (JP06-196680; Yamamoto hereinafter).

With regard to claim 1, Miyaguchi discloses an image pickup device (Fig. 3) comprising: a semiconductor substrate having a back surface, serving as a light-incident surface, and a front surface, opposing the back surface and being provided with a charge reading part constituted by a charge coupled device 14 that detects light propagating from the back surface; and a fiber optic plate 17 having a light out going end surface (surface of 17 at CCD 14 end) joined to the back surface of said semiconductor substrate (para[0028]).

As discussed above, Miyaguchi does not disclose a semiconductor substrate having a back surface, serving as a light-incident surface, and a front

surface, opposing the back surface and being provided with a charge reading part constituted by a charge coupled device that detects light propagating from the back surface. However, Fig. 1 of Yamamoto discloses a semiconductor substrate 48 having a back surface (back surface of 48 where light enters as shown in Fig. 2), serving as a light-incident surface (Fig. 2), and a front surface (surface where CCD 31 aligned), opposing the back surface and being provided with a charge reading part 31 constituted by a charge coupled device 31 that detects light propagating from the back surface. It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute Miyaguchi's silicon substrate and CCD with Yamamoto's semiconductor substrate for predictable result.

With regard to claim 7, Miyaguchi discloses a method of manufacturing an image pickup device (Fig. 3), comprising the steps of: preparing a fiber optic plate 17; and joining a light outgoing end surface (surface of 17 at CCD 14 end) of said fiber optic plate to the back surface of said semiconductor substrate (para[0028]). .Furthermore, Yamamoto discloses a method of manufacturing an image pickup device (Fig. 1), comprising the steps of: preparing a semiconductor substrate 48 having a back surface (surface of 48 where light enters as shown in Fig. 2), serving as a light-incident surface (Fig. 2), and a front surface (surface where 31 resides), opposing the back surface and being provided with a charge reading part 31 constituted by a charge coupled device 31 that detects light

propagating from the back surface. It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute Miyaguchi's silicon substrate and CCD with Yamamoto's semiconductor substrate for predictable result.

With regard to claim 2, Fig. 1, element 31 of Yamamoto discloses an image pickup device according to claim 1, wherein the light outgoing end surface of said fiber optic plate is joined to a part of the back surface (back surface of 48) of the semiconductor substrate that corresponds to a region (region where 31 is disposed) at which said charge reading part is disposed. It would have been obvious to one having ordinary skill in the art at the time of the invention to dispose the charge reading part i.e. CCD 31 to a part of the back surface of the semiconductor substrate to form a back irradiation type CCD.

With regard to claim 3, Fig. 1 of Yamamoto discloses an image pickup device according to claim 1, wherein said semiconductor substrate has a structure (Fig. 1, substrate thin structure) such that the thickness of the region at which said charge reading part is disposed is made thinner than the thickness of the remaining region, and wherein the light outgoing end surface of said fiber optic plate is joined to the part of said semiconductor substrate that is made thin in thickness. It would have been obvious to one having ordinary skill in the art at the time of the invention to make a structure such that the thickness of the region

at which said charge reading part is disposed is made thinner than the thickness of the remaining region so electron being generated must enable it to arrive at a surface potential well by shortest distance at back irradiation type CCD.

With regard to claim 4, Fig. 3, element 12 of Miyaguchi discloses an image pickup device according to claim 1, wherein a protective plate is joined to the front surface of said semiconductor substrate so as to cover said charge reading part.

Allowable Subject Matter

7. Claims 5 and 6 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fail to teach or suggest an image pickup device with a packaging having a cover with a guiding opening for inserting at least a part of a fiber optic plate into the packaging cavity as outlined in combination of other claims 5 or 6 elements.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SELIM AHMED whose telephone number is (571)270-5025. The examiner can normally be reached on 9:00 AM-6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571)272-1236. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SA
09/08

/Minh-Loan T. Tran/
Primary Examiner
Art Unit 2826